

MA 114 Introduction to Finite Mathematics with Applications

2020 Summer Session 1 Section 001

1 Course Information

Instructor

My name is Wyn Nelson and I am entering my 5th year as PhD student in Mathematics. I can be reached by email at wnelson@ncsu.edu.

Office Hours

Within the first week three 1 hour periods will be chosen to serve as Zoom office hour times. The instructor will be hosting these and students are free to join.

If a student is unable to join during any of the three chosen times they can email the instructor to schedule a time that works. Please include several time slots that would work in this email.

Textbook

Finite Mathematics by Waner and Costenoble, 6th edition. The eBook is available in WebAssign.

Course Description

Elementary matrix algebra including arithmetic operations, inverses, and systems of equations; introduction to linear programming including simplex method; sets and counting techniques, elementary probability including conditional probability; Markov chains; applications in behavioral, managerial and biological sciences. Computer use for completion of assignments.

Prerequisites

MA 101 or equivalent completed in high school.

Course Website

We will be using the Moodle learning management system (<http://wolfware.ncsu.edu>) for this course. You will log in using your Unity ID and password. (Refer to online information at <http://oit.ncsu.edu/unityid> or contact (919) 515 - HELP or HELP@ncsu.edu for assistance with your Unity ID). After the beginning of the semester, you will see a link to our course site.

Homework will be managed through WebAssign (<https://webassign.net/ncsu/login.html>). WebAssign is service that must be purchased. Students can access all material for free until May 27th, after which a purchase is necessary.

Course Communications

Modes of communication in use for this course include email, office hours, and Moodle.

- Moodle discussion forum will be used to facilitate class discussion. Check these forums often and please feel free to reply to your fellow students' post.

- The instructor will do their best to respond to weekday emails and posts within 24 hours. Email messages or posts left after 4pm Friday will be responded to by Monday evening.
- If you would like to video chat with the instructor and you can't make it to the posted office hour sessions, please email them to schedule a time that is convenient. Please include several time slots that would work for you in your email.

Please be aware that ALL email communications for this course will be sent to your NCSU unity email.

2 Course Structure

Video Lectures

At the start of each week video lectures and review material will be made available on Moodle. Students may choose to watch a video every day or pace themselves however fits their schedule best. **However** because tests are on fixed dates (see 'Test Dates' section) students should make sure to watch all videos of tested material prior to the test date.

Forums

For each video there will be an accompanying discussion forum. Each student is expected to make at least one post in the forum. Posts will be credited if they are one of the following:

- a question they have about the video lecture
- a question they have about a WebAssign problem for the section the video covers
- an answer to another student's posted question.

Homework

Homework will be completed through WebAssign. Video lectures are typically associated with one WebAssign homework, but may occasionally be associated with multiple. Weekly summaries of which assignments will be due will be sent to students, but the student is ultimately responsible for seeing which assignments are due and completing them in a timely fashion. Homeworks will be due at 8:00am on the Monday of the following week. For example WebAssign assignments for sections 1.3 and 3.1, topics covered in week 1, will be due at 8:00am on Monday, May 18th, which is the Monday of week 2.

Students are encouraged to begin each assignment as soon as they finish its associated video lecture. Remember that the forum after each video lecture also serves as the forum for the associated homework.

Within WebAssign students will be able to directly request an extension on any past due assignments. Any points earned through an extension will include a 20% penalty. Extensions will be available for up to 1 week after the assignment's original due date.

Tests and Final

There are two tests and one final exam in this course. Students will be given a full 24 hours to view and submit their solutions but may submit their solutions as soon as they are finished. Students are to write out their work and solutions and submit photo scans of to Moodle.

It is the responsibility of the student to check that the file they submit is the correct file and that solutions are readable.

Test Dates

It is the responsibility of the student to coordinate with the instructor to schedule a time to take missed tests. Such notification should be done prior to any test being missed.

All times are in reference to Eastern Daylight Time, the time zone of Raleigh, North Carolina.

- Test 1: Viewable on Friday, May 22nd at 8:00am. Must be submitted by Saturday May 23rd at 8:00am.
- Test 2: Viewable on Wednesday, June 3rd at 8:00am. Must be submitted by Thursday June 4th at 8:00am.
- Final: Viewable on Wednesday, June 17th at 8:00am. Must be submitted by Thursday June 18th at 8:00am.

Project

A course project will be introduced in week 4 and must be submitted by Friday, June 12th at 8:00am of week 5. More information about the project and its submission procedure will be available in week 4.

3 Grades and Grading

Assigning Letter Grades

This course uses standard NCSU letter grading with no rounding.

- $90 \leq A^- < 93$, $93 \leq A < 97$, $97 \leq A^+ \leq 100$
- $80 \leq B^- < 83$, $83 \leq B < 87$, $87 \leq B^+ \leq 90$
- $70 \leq C^- < 73$, $73 \leq C < 77$, $77 \leq C^+ \leq 80$
- $60 \leq D^- < 63$, $63 \leq D < 67$, $67 \leq D^+ \leq 70$
- $0 \leq F < 60$

Grading Breakdown

Grade Component	Weight	Details
WebAssign Homework	20%	Homework will be completed through WebAssign. See 'Homework' section
Forum Postings	10%	Forum responses are expected on every forum. See 'Forums' section
Test 1	15%	Test 1 will cover sections 1.3, 3.1, 3.2, and 4.1 through 4.3. See 'Tests and Final' section
Test 2	15%	Test 2 will cover sections 5.1 through 5.4, 6.1, 6.2, and 7.1. See 'Tests and Final' section
Project	20%	The course project will cover material from sections 6.3, 6.4, and 7.2 through 7.5. See 'Project' section
Final Exam	20%	The final will be cumulative. See 'Tests and Final' section

Test Grading Disputes

Regrade requests must take place within one week of a graded exam being returned. If a student believes there is a grading error or believes that a mistake has been made a re-grade request may be made. Please send an email to the instructor explaining the issue being sure to indicate which problem the issue pertains to. The instructor will then evaluate the situation, make any changes if necessary, and will promptly inform the student of the outcome.

4 Schedule

We will be following the approximate schedule below:

Week 1: May 15 to May 17

- Syllabus and Student Introductions
- Section 1.3 Linear Functions and Models
- Section 3.1 Systems of Two Equations in Two Unknowns

Week 2: May 18 to May 22

- Sections 4.1 and 4.2 Matrix Algebra
- Section 3.2 Using Matrices to Solve Systems of Equations
- Section 4.3 Matrix Inversion
- Review
- Test 1: Sections 1.3, 3.1-3.2, 4.1-4.3

Week 3: May 26 to May 29

- Section 5.1 Graphing Linear Inequalities
- Section 5.2 Solving Linear Programming Problems Graphically
- Sections 5.3 and 5.4 The Simplex Method
- Sections 6.1 and 6.2 Sets, Set Operations, and Cardinality

Week 4: June 1 to June 5

- Section 7.1 Sample Spaces and Events
- Review
- Test 2: Sections 5.1-5.4, 6.1-6.2, 7.1
- Sections 7.2 and 7.3 Probability and Project Introduction
- Section 6.3 Decision Algorithm

Week 5: June 8 to June 12

- Section 6.4 Permutations and Combinations
- Section 7.4 More Counting Techniques
- Section 7.5 Conditional Probability and Independence
- Project Due
- Section 7.6 Bayes' Theorem and Applications

Week 6: June 15 to June 16

- Sections 7.7 Markov Chains
- Review

5 Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at <http://policies.ncsu.edu/policy/pol-11-35-01>. The NCSU Student Code of Conduct (<https://studentconduct.dasa.ncsu.edu/code/>) covers all work done in this course. Any suspected violations will be promptly reported. Academic dishonesty will result in an automatic failing grade for the course.

6 Course Evaluations

A formal evaluation is conducted by the University at the end of the semester and the goal is to achieve 100% class participation in this survey. Online class evaluations will be available for students to complete during the last two weeks of class. Students will receive an email message directing them to a website where they can login using their Unity ID and complete evaluations. All evaluations are confidential; instructors will never know how any one student responded to any question, and students will never know the ratings for any particular instructor.

7 Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office at Holmes Hall, Suite 304, 2751 Cates Avenue, Campus Box 7509, 919-515-7653. For more information on NC States policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01) (<https://policies.ncsu.edu/regulation/reg-02-20-01/>).

8 Trans-Inclusive Statement

In an effort to affirm and respect the identities of transgender students in the classroom and beyond, please contact me if you wish to be referred to using a name and/or pronouns other than what is listed in the student directory.

9 Basic Needs Security

Any student who faces challenges securing their food or housing or has other severe adverse experiences and believes this may affect their performance in the course is encouraged to notify the instructor if you are comfortable in doing so. Alternatively, you can contact the Division of Academic and Student Affairs to learn more about the Pack Essentials program <https://dasa.ncsu.edu/pack-essentials/>

10 Supporting Fellow Students in Distress

As members of the NC State Wolfpack community, we each share a personal responsibility to express concern for one another and to ensure that this classroom (as well as the campus as a whole) remains a healthy and safe environment for learning. Occasionally, you may come across a classmate whose personal behavior concerns or worries you, either for your classmates well-being, for your well-being or for the well-being of others. When this is the case, I would encourage you to report the behavior on the link located on NC States Students of Concern website (<http://go.ncsu.edu/NCSUcares>).

11 List of Policies

Students are responsible for reviewing the NC State University PRRs (policies, rules and regulations) that pertain to their course rights and responsibilities:

- Equal Opportunity and Non-Discrimination Policy Statement
<https://policies.ncsu.edu/policy/pol-04-25-05/withadditionalreferences> and
<https://oied.ncsu.edu/equity/policies/>
- Code of Student Conduct <https://policies.ncsu.edu/policy/pol-11-35-01/>
- Grades and Grade Point Average <https://policies.ncsu.edu/regulation/reg-02-50-03/>
- Credit-Only Courses <https://policies.ncsu.edu/regulation/reg-02-20-15/>
- Audits <https://policies.ncsu.edu/regulation/reg-02-20-04/>